UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/682,290	08/14/2001	Francois S. Nicolas	GEMS:0140/YOD 15-XZ-5749	6671

EXAMINER
CHOOBIN, BARRY

ART UNIT	PAPER NUMBER
2625	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/682,290	NICOLAS ET AL.
	Examiner	**Art Unit**	
	Barry Choobin	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-91_ is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) _1-91_ is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on _14 August 2001_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-6, 9-12, 16-27, 30-31, 34-39, 41-43, 47-52, 54, 56-59, 61-63, 65-69, 73-77, 79, 80, 82-84, 87-91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dekel et al (Us 2003/0059096) in view of Engelmann et al (US 5,987,345).

As to claims 1, 41, 59, Dekel et al disclose a method for processing images produced by medical diagnostic imaging systems, comprising:

compressing at least one image of a plurality of temporally distinct medical images of desired physiological features (page 1, paragraph 0014);

transmitting the plurality of temporally distinct medical images to a remote processing system via a network (fig.1).

Dekel et al does not expressly disclose generating an image from the plurality of

temporally distinct medical images to highlight temporal differences of the desired

physiological features between the image pair.

Engelmann et al in a method for displaying medical images teach generating an image

from the plurality of temporally distinct medical images to highlight temporal differences

of the desired physiological features between the image pair (see claim 1 and Fig.8).

Dekel et al and Engelmann et al are combinable because they are from same field of

endeavor of medical image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in

the art to modify Dekel et al with generating an image from the plurality of temporally

distinct medical images to highlight temporal differences of the desired physiological

features between the image pair as taught by Englemann et al in order to illustrate the

difference in the condition of a patient over time (column 3, line 65 thorough column 4,

line 5 of Engelmann et al).

The suggestion/motivation for doing so would have been improve the diagnostic

accuracy and consistency of radiologist's image interpretation and allow the radiologist

to rapidly view the changes in condition of a patient (column 2, lines 1-5 of Engelmann

et al).

Therefore, it would have been obvious to combine Engelmann et al with Dekel et al.

As to claim 2, Dekel et al disclose at least one image comprises compressing a

new medical image obtained by a medical diagnostic imaging system (fig.4 wherein

new ROI corresponds to a new image).

As to claims 3, 27, Dekel et al disclose compressing the at least one image

comprises reducing resolution of the at least one image (fig.7 and Paragraph 0386).

As to claims 4, 73, Dekel et al disclose compressing the at least one image

comprises sub sampling the at least one image (paragraph 0014).

As to claims 5, 74, Dekel et al disclose compressing the at least one image

comprises performing dynamic range reduction on the at least one image (paragraph

0274).

As to claims 6, 75, Dekel et al compressing the at least one image comprises

performing loss-less compression on the at least one image (paragraph 0013).

As to claims 9, 30 Dekel et al disclose compressing the at least one image

comprises increasing electronic transfer speeds for network transfers of the at least

one image (Paragraph 0302).

As to claims 10, 31, 47, 48, 66, 67, 68, 69, Dekel et al disclose transmitting the

plurality of medical images comprises communicating with the remote processing

system via a uniform interface for the remote processing system (paragraph 0248).

As to claim 11, Dekel et al disclose communicating with the remote processing system via the uniform interface comprises interacting between a thin client and an applications service provider (Fig.1).

As to claim 12, Dekel et al transmitting the plurality of temporally distinct medical images comprises initiating an image processing request at the uniform interface for remotely processing the plurality of temporally distinct medical images at the remote processing system (Fig.2, step 201).

As to claim 16, 49, 61, Engelmann et al disclose generating the image comprises geometrically matching the desired physiological features in at least two of the plurality of temporally distinct medical images (fig.5, wherein images are superimposed).

As to claims 17, 18, 34, 35, 57, 58, 62, 84, Engelmann et al disclose geometrically matching the desired physiological features comprises deforming an older image of the plurality of temporally distinct medical images (column 11, lines 35-40).

As to claims 19, 20, 21, 36, 52, generating the image comprises processing the plurality of temporally distinct medical images in compressed formats (see claim 1).

As to claims 22, 23, 37, 38, 76-77, 82, 83, Engelmann et al disclose automatically evaluating medical criteria and selecting a desired old image from a set of old images from the plurality of temporally distinct medical images (column 4, lines 58-64).

AS to claims 24, 25, 39, 56, transmitting a report of the temporal differences to a client via the network (see claim 1).

As to claims 26 and 79, a method for temporal analysis of medical diagnostic images, comprising: compressing a plurality of temporally distinct medical diagnostic images of desired physiological features; electronically transmitting the plurality of temporally distinct medical diagnostic images to a remote processing system; geometrically matching the desired physiological features of at least two images of the plurality of temporally distinct medical diagnostic images at the remote processing system; and generating an image from the at least two images to highlight physiological differences between the at least two images (limitations of this claim are addressed in claim 1 and claim 16).

As to claims 42, 65, 80, Dekel et al disclose (inherently prior to transfer the data are compressed before transmission) compressing at least one image of the medical diagnostic images prior to an electronic transfer over the network.

As to claims 50, 51, wherein processing the at least two images comprises

subtracting a first image of the at least two images from a second image of the at least

two images (see claim 1).

As to claim 63, wherein the remote processing system comprises an image

subtraction module configured for subtracting a first image from a second image of the

at least two images (see claim 1).

As to claims 33, 53 and 60, claims merely require coordinating output of multiple

images. The superimposing of images of Engelmann et al corresponds to a

coordination of images.

As to claims 47 and 70, Dekel et al disclose uniform interface has a processing

request module configured for transmitting to the remote processing system a

new image of the plurality of medical images and a request for temporal comparison

with at least one old image of the plurality of medical images (see fig.2, 201).

As to claims 87-91, all the limitations of the method claims 1, 26, 41, 59 and 79

have been addressed.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed
>
> or described as set forth in section 102 of this title, if the differences between the
>
> subject matter sought to be patented and the prior art are such that the subject
>
> matter as a whole would have been obvious at the time the invention was made
>
> to a person having ordinary skill in the art to which said subject matter pertains.
>
> Patentability shall not be negatived by the manner in which the invention was
>
> made.

4.   Claims 7, 8, 28-29, 44-45, 71, 72 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Dekel et al in view of Engelmann et al as applied to claim1 above,

and further in view of Fredlund et al (US 6,353,487).

As to claims 7, 28, 44, the method of claim 1 (see claim 1).

Both Dekel et al and Englemann et al fail to expressly disclose compressing the at

least one image comprises reducing memory consumption of the at least one image by

a ratio of between 15:1 to 5:1.

Fredlund et al disclose reducing memory consumption of the at least one image by a

ratio of between 15:1 to 5:1(column 5, lines 34-42).

Fredlund et al is combinable with both Dekel et al and Engelmann et al because it

deals with image processing and transmitting the image in compressed mode.

At the time the invention, it would have been obvious to a person of ordinary skill in the art to modify the combination of Dekel et al and Engelmann et al with Fredlund et al in order to reduce storage requirement (column 5, line 35).

The suggestion/ motivation for doing so would have been to reduce storage requirement for both low and high-resolution images (column 5, lines 34-37). Therefore, it would have been obvious to combine Engelmann et al and Dekel et al with Fredlund et al.

As to claims 8, 29, 45, 71, 72, Fredlund et al memory consumption comprises reducing the at least one image to a file size between approximately 500 KB and approximately 2 MB (column 5, lines 15-27).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negatived by the manner in which the invention was

made.

6.   Claims 13-15, 32, 33, 46, 55, 64, 78, 81, 86 are rejected under 35 U.S.C. 103(a)

as being unpatentable over Dekel et al in view of Engelmann et al as applied to claim1

above, and further in view of Rothschild et al (US 2002/0019751).

As to claims 13, 14, 46, 64, 81, both Dekel et al and Engelmann et al fail to

expressly disclose transmitting the plurality of temporally distinct medical images

comprises gathering medical images from a plurality of image storage systems at

medical institutions.

Rothschild et al disclose a medical image management system and method

comprising: transmitting the plurality of temporally distinct medical images comprises

gathering medical images from a plurality of image storage systems at medical

institutions (abstract).

Rothschild et al, Dekel et al and Engelmann et al are combinable because they all deal

with medical image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in

the art to modify the Dekel et al and engelmann et al with Rothschild et al in order to

reduces the high financial cost, resource allocation, time, and unreliability associated

with conventional production, transportation, and viewing of conventional film-based

systems and methods (0031).

The suggestion/motivation would have been to reduces the high financial cost, resource allocation, time, and unreliability associated with conventional production, transportation, and viewing of conventional film-based systems and methods. Therefore, it would have been obvious to combine Rothschild et al with Dekel et al and Engelmann et al.

As to claims 15, 32, 55, 78, 86, Rothschild et al disclose transmitting the plurality of temporally distinct medical images comprises encrypting data being transmitted via the network (Paragraph 0019).
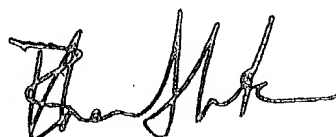
CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry Choobin whose telephone number is 703-306-5787. The examiner can normally be reached on M-F 7:30 AM to 18:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 703-308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

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August 17, 2004

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